

Fire safety

Product fire classification.
New European classification.
The HTA® and Kryoclim® products satisfy the requirements of fire regulations.

EUROCLASSES – USER'S GUIDE

Euroclass fire ratings for building materials and products will eventually replace old classifications specific to each country, all across Europe. Therefore, for France, the M0, M1, M2, M3, M4 classifications will gradually be abandoned. Euroclasses are a new harmonized classification based on new criteria, resulting from new test and trial standards. A complete programme !

Therefore, in the future, products must satisfy new technical criteria point by point.

In particular, new requirements defined as belonging to these new Euroclasses apply to the behaviour of products in a fire.



Mr. Alain SAINRAT, Manager of the LNE "Fire reaction" Division

In the building industry, there is a European directive for construction products (Directive 98/106/CEE, December 21, 1998 called the "DPC") that defines six essential requirements. Point No. 2 concerns "safety in case

of fire" and particularly fire reaction. The behaviour of a material in a fire will be defined by its fire reaction class. Therefore, fire reaction will represent the capability of a material to inflame and therefore to contribute to the development of a fire.

What criteria are used to certify this behaviour in a fire? Recently, behaviour has been certified according to the EUROCLASSES criterion. These EUROCLASSES are new harmonized European classifications to evaluate the various fire reaction levels of building products. European texts have been transcribed into French law by the November 21, 2002 order.

The objective is to obtain an official and recognized certification issued particularly by the LNE (Laboratoire National d'Essais - National Tests Laboratory) under the control of the Ministry of Development.

FIRE RESISTANCE, HTA® ON THE CHAMPIONS PODIUM

The Trappes LNE carried out fire tests on GIRPI's HTA® on October 28, 2003, to obtain international certification of the product according to EUROCLASSES.

The excellent behaviour of HTA® in a fire in the SBI* test resulted in the following classification:

B - s1 - d0**

flash...

At the moment, one of the essential requirements of the new European directive related to construction products is that a building must guarantee safety of its occupants during a fire. Furthermore, firemen must be able to fight the fire under the safest possible conditions. Consequently, specifiers and installers must use products that can satisfy these new requirements, which is why it is obviously advantageous to select products with the best possible behaviour in a fire.

GIRPI is faithful to its "safety of your networks" motto, and has already submitted its HTA® range to the new fire reaction tests, according to the new standards and requirements imposed by EUROCLASSES.

This testing, done by the LNE (National Tests Laboratory), once again confirms that GIRPI products offer the best guarantees.

An unquestionable quality guarantee of perfect safety for your networks.

HTA® has passed this test hands down, and has become the first product in its category to obtain a European classification.

The LNE states that "no thermoplastic pipe had yet been awarded this classification in the SBI* test. Alain SAINRAT (Head of the "Fire reaction" Division at the LNE) is quite unambiguous in saying "this is the best possible class for synthetic materials (...), it is a genuinely remarkable classification, confirming the top class behaviour of this product in a fire.

* SBI = Single Burning Item, see test details on page 4
** explanation of this classification on pages 2, 3 and 5.

Everything you need to know about

MORE DEMANDING NEW CRITERIA :

Euroclasses defining the fire reaction of construction materials and products now take account of three essential criteria: ① **concept of flammability** - ② **smoke release** - ③ **production of burning drops**. Consequently, they help to determine the behaviour of these products with more accuracy than before.

GENERAL CLASSIFICATION TABLE

FIRST CRITERION : concept of flammability

Ignition time, fire propagation and energy contribution of the product. This is represented by a measurement of heat released from the product and its potential contribution to propagation of a fire (possibly up to a general flash over).

CLASS	
A - B - C - D - E - F	
Inert materials	Highly combustible in fire

SECOND CRITERION : smoke release (s for smoke)

- s1 = no smoke
- s2 = smoke
- s3 = large scale production

New

THIRD CRITERION : production of burning drops (d for drops)

- d0 = no drop
- d1 = droplets
- d2 = many drops

New

MATERIAL CLASSIFICATION INDEXES AND MEASUREMENTS ACCORDING TO THE NEW EUROCLASS CRITERIA

FIRST CRITERION : Concept of flammability

Ignition time, propagation and energy contribution of the product
3 types of tests are carried out to represent three progressive scenarios.

Scenario I the first scenario is the ignitability scenario when subjected to a small flame such as a match or a lighter (**small flame test**)

Scenario II this takes account of flammability and development of a fire on a product subjected to an isolated burning object such as a burning paper bin or chair. The fire may develop to different degrees up to a general flash over (**SBI test**).

Scenario III Product subjected to a general flash over. This scenario is designed to evaluate product performances in the case of the highest heat application (fire raging in the room) (**calorimetric bomb test**).

What EUROCLASSES correspond to each of these scenarios?

Class F : product not tested or not certified in any of the following classes

Class E : attacked by a small flame. This heat application level is very low.

scenario 1

small flame test

a class E product will not ignite when a small flame is applied to it.

Class B, C, D : These 3 class levels represent a varying degree of fire reaction of the product exposed to an isolated burning object. This class will depend on the capability of the product to sustain development of the fire during the phase preceding the general flash over.

scenario 2

S.B.I. test

In other words, if the product starts to burn, a check will be made to determine whether or not it leads to a general flash over and, if so, how long it takes for this flash over to occur.

This scenario is represented by the Single Burning Item (S.B.I.) and characterizes the propagation and energy contribution of the product.

Class D : no general flash over during the first 2 minutes of the test

Class C : no general flash over during the first 10 minutes of the test

Class B : no general flash over during the 20 minutes of the test

Class A1, A2 : These are inert materials (concrete, glass, metal, ceramic, etc.) that only make a very small contribution to development of a fire when exposed to a general flash over.

scenario 3

calorimetric bomb test

fire reaction euroclasses

SECOND CRITERION : smoke

It is important to understand that the behaviour of a product exposed to fire is not the only problem.

When a fire occurs, it is also necessary to be able to evacuate residents from a building, and to allow firemen to move around and keep their bearings during a fire.

The production of smoke by the product as it burns becomes very important.

Three smoke production levels have been defined :

- s 1** : products for which the rate of increase in the production of smoke and the total production of smoke is very limited
- s 2** : products for which the rate of increase in the total production of smoke is limited
- s 3** : products that are neither s1 or s2 (products producing a large quantity of smoke)

THIRD CRITERION : droplets

It is also essential that the product should not generate burning particles as it burns, since they can cause secondary fires.

Furthermore, flaming drops or particles create a very serious risk for firemen when they enter a burning building, since these falling particles can cause serious burns.

Three classification levels have been defined :

- d 0** : no burning drops
- d 1** : no drops or debris that remain burning for more than 10 seconds
- d 2** : paper starts to burn during the test with a small flame

In conclusion, all these tests are intended to reconstitute conditions developed during a fire in a building.

Therefore the different tests (flammability, smoke, droplets) will characterize the products as a function of their intrinsic performances according to clearly defined criteria.

The materials will be assigned an official classification (**EUROCLASS**) based on these test results.

EUROCLASSES AND FRENCH REQUIREMENTS

- Euroclasses are only applicable to "**building**" products, in the sense of European texts.
- French safety regulations have not yet been modified.

The next step is to reformulate requirements expressed in the various fire regulations applicable to the different types of structure (buildings open to the public, high buildings...), using EUROCLASSES.

For example, at the moment, the July 29, 2003 order on fire safety for buildings open to the public recommends M1 for air conditioning pipes.

French regulations (and regulations in other countries) will eventually be replaced by these Euroclasses , with acceptability criteria which are now expressed as an M class.

CONSTRUCTION PRODUCTS OTHER THAN FLOORS			
EUROCLASSES			
flammability	smoke	drops	
A1			inert materials
A2	s1	d0	
A2	s1	d1	
	s2	d0	
B	s3	d1	
	s1	d0	
	s2	d1	
C	s3		synthetic materials
	s1	d0	
	s2	d1	
D	s3		
	s1	d0	
	s2	d1	
	s3		

All classes other than E, d2 and F

EUROCLASSES / M CLASSES : CORRESPONDENCE

CORRESPONDENCE ORDER

(Appendix 4 to the November 21, 2002 order).

The standard experts wrote the correspondence order so that the SBI class results obtained can be used instead of the existing M class.

European classes will eventually replace existing M classes.

Therefore, at the moment, the classification B-s1-d0 can be used in places where the regulation requires M1.

Technically, the SBI test provides much more information about smoke and droplets than the M classification.



Mr. Chevalier at the LNE

LNE : EVERYTHING YOU NEED FOR FIRE RESISTANCE TESTS

"The main mission of the LNE (Laboratoire National d'Essais - National Tests Laboratory) is product certification ..."

THE SMALL FLAME TEST (NF/EN 11925-2)

This is the first test degree. All products must pass this test so that they can then be tested on a larger scale, if they are to obtain a satisfactory fire behaviour classification.

This test is called the "small flame" test. It is a pre-selection test to eliminate materials with the lowest performances.

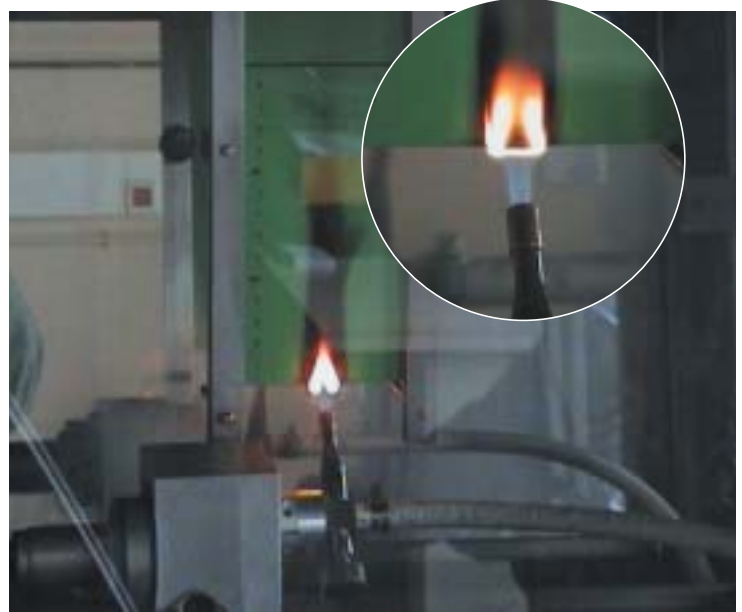
It uses a small ignition source such as a small burner or a lighter.

The next step if the material resists is to perform much more extensive tests with the SBI (Single Burning Item).

There are two levels of thermal attack :

- a first level with a 15 second exposure to a flame.
- a second level with a 30 second exposure.

(GIRPI's HTA® passed both of those levels with no difficulty).



When the flame is applied for 15 seconds at first level, the vertical propagation of the flames must not reach a line 150 millimeters above the application point of the burner in less than 20 seconds.

If it does, the material will be assigned class F. If it does not reach the line in less than 20 seconds, the material will be assigned class E.

For the second level, the product is submitted to a further 30-second exposure, therefore twice as long as the first one.

If the 150-millimeter reference line is not reached within 60 seconds, the material is approved for SBI (Single Burning Item) tests, and possibly for assignment in class B, C or D.



THE "SBI" TEST : THE GENUINE TEST BENCH or The "truth test" by A. SAINRAT at the LNE

The SBI test apparatus is an essential device for determining Euroclasses on a product or a Single Burning Item.

This "SBI" test was developed on the basis of this philosophy to be as realistic as possible. This test was fully developed in Europe, since it did not exist at all before. It was specially designed for these "Euroclasses", so

that the same test method can be used in all countries.

What is it? Product usage conditions are recreated, and it is considered that the exposure of the "room corner" to fire is the most severe condition.



Therefore, two 1.50 m panels are made up, with widths of 0.50 m and 1 m.

A 1-meter long flame with a power of 30 kilowatts is then applied to the "corner" of these panels.

A hood is placed above this "testing corner" to recover combustion gases so that they can be analyzed and a measurement of the heat quantity released as a function of time and the quantity of smoke can be performed. The formation of burning drops or falling burning materials will also be observed during the test, to evaluate the risk of fire propagation on the ground caused by these falling materials.

This is the basic principle of this apparatus for the SBI test.



SBI TEST

A STRICTLY CONTROLLED PROCEDURE FOR 21 DECISIVE MINUTES (A. SAINRAT at the LNE)

How is the SBI test done?

The test itself lasts for 21 minutes; but two intermediate steps, or more precisely preliminary steps, are also necessary.



FOR THE FIRST TWO MINUTES

The equipment is started up and blank measurements are made



AFTER THE SECOND MINUTE

An auxiliary burner will be ignited for three minutes to calibrate the calorimetric flow measurement and to ensure that the base line is the calorific flow measurement.



AFTER THE FIFTH MINUTE

The main burner will be lit up in the corner of the testing area.

During these 21 minutes, the quantity of heat released by combustion of the product within the allocated time, and the nature of smoke released (if any) are measured.



AFTER THESE 21 MINUTES

The test is stopped, in other words the burner is switched off and the testing sample is removed once the smoke has disappeared.

HTA[®] PERFORMANCE



For 21 minutes, HTA[®] proved its resistance to combustion and its low smoke release.



Measurements of the main criteria, firstly the quantity of heat released and secondly the loss of visibility as the test progresses, are then recorded on a data acquisition system and calculated according to some specific formulas.

Therefore, all these parameters are measured as the test progresses, by combining probes placed in the gas extraction duct. The data derived from the resulting analyses will then be recorded and used to determine the class.

" FOR EXAMPLE,
THE BEST POSSIBLE CLASS
FOR PRODUCTS MADE FROM
SYNTHETIC MATERIALS IS CLASS

B, s1 and d0 "

(A. SAINRAT at the LNE)

RELEASE OF HEAT AND PROPAGATION POTENTIAL

TWO MEASUREMENT INDEXES

- **FIGRA** in watts / second
- **THR** (Total Heat Release) in Megajoules

The **FIGRA** represents the growth rate of the fire (increase in heat release rate).

The **THR** expresses the total quantity of heat released during the first 10 minutes of the test (by integrating the heat release rate curves).

CLASSIFICATION

A1 and A2 = inert materials such as glass, stone, metal, ceramic, concrete, etc.

B = Figra < 120 W/s (watts / second)
THR < 7.5 mJ

C = Figra < 250 W/s (watts / second)
THR < 15 mJ

D = Figra < 750 W/s (watts / second)
THR < no limit



SMOKE RELEASE

TWO MEASUREMENT INDEXES

- **SMOGRA** m²/s²
- **TSP** (Total of Smoke Production) in Megajoules.

The **SMOGRA** represents the smoke development ratio.

The **TSP** expresses the total quantity of smoke released during the first 10 minutes of the test (by integrating the smoke production curves).

CLASSIFICATION

class s1 = SMOGRA ≤ 30 m² s²
TSP ≤ 50 m²

class s2 = SMOGRA ≤ 180 m² s²
TSP ≤ 200 m²

class s3 = products that are not s1 or s2.

PRODUCTION OF BURNING DROPS (or burning particles)

class d0 = no burning drop or particle within 600 seconds

class d1 = no burning drop or particle persistent for more than 10 seconds, before 600 seconds

class d2 = products that are not d0 or d1.

HTA[®] : secures your pipes in case of fire.



EUROCLASS FIRE TEST HTA[®] IS AWARDED THE EXCELLENCE PRIZE

"These three classes B, s1, d0 awarded to the HTA[®] are genuinely remarkable for a synthetic material. No better result could be obtained. The clear conclusion is that this product has very good fire behaviour."

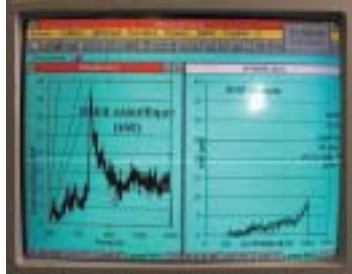
This is the result that we obtained after a 21-minute test.

This diagram represents the amount of heat produced by the HTA[®] product that we tested, as a function of time. At the left we can see another diagram of the same type but for another product, for which the behaviour in a fire is significantly less good.

This result clearly shows that the quantity of heat released by the HTA[®] product is very small.



This other curve is for another synthetic product that burns easily, and the difference is plain to see.



It can be seen that the very low slope for HTA[®] results in a very low FIGRA (Fire Growth Index). This is why this product is assigned class B.

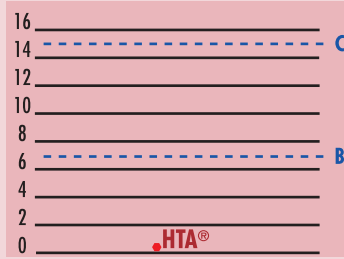


The curve for smoke is then similar, although there is very little smoke present. This is why class s1 was granted for very little smoke release. At the same time, no drops or burning particles are produced with HTA[®], which is why class d0 was assigned for this criterion.

HEAT RELEASE INDEXES

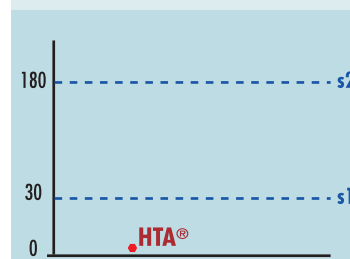


FIGRA w/s (watts/second)
the HTA[®] index obtained is 2
(which is 1.7% of the max. B)



THR mJ (megajoules)
the HTA[®] index obtained is 0.5
(which is 6.7% of the max. B)

SMOKE RELEASE INDEXES



SMOGRA
The HTA[®] index obtained is 1
(which is 3,3% of the max. B)



TSP
The HTA[®] index obtained is 31
(which is 62% of the max. B)

NO PRODUCTION OF BURNING DROPS BY HTA[®].

HTA[®] : secures your pipes in case of fire.



HTA[®] CONFIRMED FIRE RESISTANCE

The resistance of HTA[®] in a real fire was observed in situ during a recent fire in a building (ENSAM in Lille).

This building is equipped with HTA[®] and it was proven that HTA had very good resistance to fire, and this is clearly illustrated by the adjacent photos, providing unquestionable proof.

That fire also demonstrated how important it is to use a non-flammable pipe.

Some specifiers believe that there is no need to use M1 pipes for pressurized hot or cold water networks, based on the principle that the pipes will be full of water if a fire occurs.

In fact during that fire, the pipes "emptied" naturally and then no longer contained any water.

That is why many specifiers now impose M1 for domestic hot and cold water pipes, since a pressurized pipe can then become empty and must therefore satisfy requirements for drain pipes (M1).



KRYOCLIM[®] : FOR CHILLED FLUIDS AND CENTRAL AIR CONDITIONING

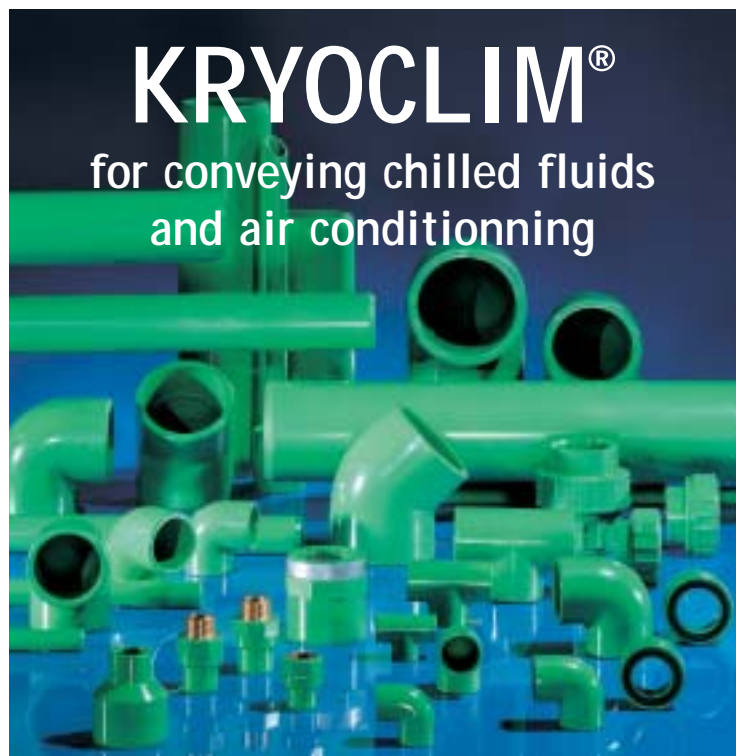
- class M1 : non-flammable
- excellent resistance to shocks
- wide working temperature range (from -30°C to +40°C)
- no corrosion
- perfect leak tightness
- low head losses
- low heat losses
- fast installation
- minimum maintenance
- lightweight, easy to handle.



Due to its intrinsic nature and qualities, KRYOCLIM[®] satisfies every single requirement defined in safety, mechanical strength and fire resistance specifications.

KRYOCLIM[®]

for conveying chilled fluids and air conditioning



HTA® - KRYOCLIM® : GIRPI SAFETY, proof by example

"This product provides all fire safety guarantees".

Emile PADILLA – Engineer



Hôpital de la Conception - Marseille

Engineers working in engineering services in hospitals, design office managers, specifiers and installation contractors treat safety as a controlling and overriding factor, particularly in buildings open to the public. GIRPI met some of these engineers in Marseille, their reports speak for themselves.



Emile PADILLA - Engineer –
Engineering department at Marseille
"Hôpital de la Conception".

Q : Can you explain when and why you chose HTA®, what are the results and are you satisfied with it?

R : We have been using HTA® in Marseille Hôpital de la Conception for about fifteen years.

Q : Why?

R : Because we realized that corrosion problems can occur on metal products, particularly for domestic hot water.

Q : Do you use HTA® as much for domestic hot water as for cold water?

R : We are fully satisfied with its use for domestic hot and cold water.

Q : Is it important to you to use products made from a synthetic material such as non-flammable HTA® Class M1?

R : Very much so, because hospitals are governed by very severe and extensive regulations. Therefore, heat capacities of products in a fire are very important selection criteria. This is obvious.

These products are very efficient and must be used to replace old metallic networks.



MORE THAN 20 YEARS AGO ...

The Thermatic company, based in Marseille, was the first one to install HTA® in the south of France.

Q : What can you tell us about the installation and length in time of this product?



L. VIAL (In charge of the company's research department) : the working life is undeniable : from up to now, we've never been asked to replace an HTA® networks.

Q : What about the installation in comparison with the metallic pipes?



C. SAVY (Supervisor for the pipework installation site) : HTA® is easier to handle, and easier to implement.

Q : Is the recommendation to switch from metallic to synthetic materials well accepted?

B. ANDRIEUX (Manager of Marseille's office) : There are old habits. But I deeply believe that bringing technical solutions with reliable products, which answer to the new sanitary regulations and which give plenty satisfaction to the installers, is determinant. On that basis, HTA® and KRYOCLIM® which are becoming normal practice, will convince more and more skeptic minds.

Q : What about the financial aspect of the building site?

B. ANDRIEUX : Putting an end to after-sale's interventions, due to corrosion and scaling problems, is a first saving cost. Add the global building site budget aspect (provision, time-saving...), these are great interests a dynamic company will look after.



GIRPI SAFETY: UNDENIABLE REPORTS



Marseille "Hôpital Nord" Public Hospital



"The first major advantage is M1 fire resistance, this is an overriding criterion (J.M. VIAL, Chief Engineer)



J.M Vial, Chief Engineer in the Marseille Hôpital Nord engineering department.

Q : Can you explain the problem that you needed to solve in your hospital?

R : The problem is simple. Marseille Hôpital Nord is a high building; Therefore, we need to satisfy extremely demanding fire regulations. That means that we can only use materials with specific fire resistance ratings. In this respect, this product had to be class M1.

That was the main reason why we used KRYOCLIM®, since it has an M1 fire resistance rating. This is quite different from other products made of synthetic material by companies other than GIRPI, that cannot really prove a satisfactory level of fire resistance for their products at the moment.

We had to use pipes with M1 fire resistance.

KRYOCLIM® satisfies this new requirement, and this is why we used this material. Obviously, the condensation problem should also be considered in the comparison with steel. The condensation effect is significantly less important, which is another advantage.

But the biggest advantage is undoubtedly its M1 fire resistance.

Q : Is it a controlling criterion for you?

R : Yes it is a controlling criterion

Q : And for the installation?

R : It is true that installation of KRYOCLIM® or HTA® is much faster than steel; the procedure is very different from brazing. And the weight factor is far from being negligible too.

Q : Is it the first time that KRYOCLIM® has been used in this hospital?

R : It isn't the first time, since we installed a first phase in the adjacent "mother and child" building built two years ago, using KRYOCLIM®. Therefore, we have used KRYOCLIM® in the past.

Q : Successfully?

R : Yes, there were no problems, since before that installation, we made a complete redevelopment on the 3rd floor last year, also using KRYOCLIM®.

This new phase will be our third operation using KRYOCLIM®, this time on three floors.

Q : Had you already used GIRPI products like HTA® in the past?

R : We have frequently used the GIRPI HTA® product for renovation of domestic hot water risers, loops, to solve legionella problems. This is a systematic multi-annual renovation program, in which we regularly replace our steel pipes by HTA®.

Q : Do you think that you will eventually replace all metallic networks in your hospital with CPVC, and therefore particularly HTA®?

R : Undoubtedly yes, since we have just completed all risers. Now we need to replace the primary horizontal distribution; We will start this task, and we will also install CPVC, namely HTA®.

Q : Consequently, in conclusion, can you say that the GIRPI products such as HTA® and KRYOCLIM® provide effective solutions to problems that you encounter in hospitals?

R : Yes. Satisfactory solutions and responses for the problems that we need to deal with.



GIRPI SAFETY : THE ANSWER TO REQUIREMENTS



Mr. Stéphane REPETTO, Chief Engineer, Manager of the Engineering service at Marseille "Hôpital de la Conception".

Q : You are the Engineering Manager for the Hôpital de la Conception, and as such, it was your responsibility to select GIRPI HTA® pipes for new installations?

R : Yes, we chose this type of product for our building renewal and maintenance and extension program, since this product is an alternative to metallic products (galvanized pipes) that we have been using for several years but which are now prohibited by the CLIN*, and is being

used to replace them. We use HTA® products to build a long lasting installation, and particularly with no hot spots.

This is also important, since difficult work constraints are also becoming more and more frequent, due to CLIN recommendations.

This is the context in which we have used and will continue to use this type of product.

* Committee for the Reduction of "Nosocomial" Infections



"We have to use M1 type materials in buildings open to the public. The HTA® product perfectly satisfies these regulations (...) There is no doubt that this leads directly to safety in terms of hospital hygiene". Stéphane REPETTO, Chief Engineer

Q : Is the non-flammable M1 nature of polymer pipes such as HTA® important to you?

R : Yes.

The hospital is a "Monitored Health" type of building open to the public, and we are obliged to respect fire safety standards. Therefore, in terms of material quality, we are obliged to use M1 type materials, among others. Therefore, this HTA® product fully satisfies the regulations.

Q : And in terms of durability?

R : Absolutely. This product is genuinely long lasting and there is

no corrosion problem with it. Although we are having corrosion problems with galvanized steel pipes, and sometimes also clogging phenomena, there are fewer deposits in CPVC networks and this is very important particularly in the struggle against MRSA / "superbugs", and especially legionella.

Q : Therefore perfect safety?

R : Absolutely. There is no doubt that we are on the right road towards safety in terms of hospital hygiene.



Mr. BEVILACQUA: AMEC / SPIE Company. Supervisor for the HTA® installation site at the Marseille "Hôpital de la Timone".

Q : You've been in charge of supervising the hot and cold water HTA® networks installation at the Hôpital de la Timone?

R : Yes, this is the renovation program for the ECS network at the Marseille Hôpital de la Timone, as



part of the struggle to reduce legionella. We now use HTA® to prevent existing problems in hospitals.

We are in the Marseille Hôpital de la Timone substitution. And we chose HTA® particularly to reduce the effect of legionella, and to



replace old metallic networks. HTA® is made of a material that is very suitable for renovation. It is installed very quickly, it is very effective in use, and we hope that, thanks to this material, there will be no legionella problems in hospitals in the future.

Another very important point is that it is a class M1 product that is ideal to resist fire propagation. Therefore, HTA® is a product that is fully satisfactory for installation and for use with regard to the requirements of hospital agents.

AIR CONDITIONING : STATE OF EMERGENCY FOR HEALTH CARE FACILITIES

THE NANCY CENTRAL HOSPITAL CHOOSES KRYOCLIM®



The heat wave in summer 2003 was undoubtedly one of the factors that increased awareness (although too late) about the problem of air conditioning in hospitals, clinics and medicalised homes.

That must not happen again. Measures have to be taken urgently. It is time to deal with health facilities, which are particularly sensitive because of the state of vulnerability which characterizes persons who stay in them.

This is the context in which Nancy Central Hospital made a firm commitment to a large-scale air conditioning program, and has chosen KRYOCLIM® instead of steel.

That choice was made logically, based on its undeniable qualities.

1998 : PARTIAL "AIR CONDITIONING" MADE OF STEEL

The neurology building was built in 1998 and there was only limited air conditioning. At the time, only "strategic" sectors such as surgery theaters, intensive care or MRI rooms were equipped with air conditioning. This air conditioning was designed using steel pipes. Budget constraints made it impossible to install "air conditioning" equipment in other services.

2004 : AGAINST THE HEAT WAVE, AN AMBITIOUS TARGET

The temperature rose to 30°C in this building in summer 2003, causing extreme discomfort in some departments, and particularly in neurology. The Nancy hospital decided to extend the air conditioning quickly and efficiently to provide protection against a probable heat wave in the future.

A first phase occupying 22 000 m² on 6 floors has now begun, but this is only 50% of the total !

A detailed study has been started and work should begin in September this year.

VERY SPECIFIC CONSTRAINTS

How to install air conditioning in a permanently occupied and particularly sensitive facility, without any even partial interruption to operation? This means safety, silence, cleanliness and speed. No flame, no torch, no noise and easy preparation and installation of components of the system are absolute pre-requisites. KRYOCLIM® satisfies each of these requirements. Lighter weight than steel, little or no condensation, easy to assemble, and fast and easy to install (a single person can carry a piece of pipe on his own !). Furthermore, cleanliness and safety due to cold welding assembly And a long working life thanks to the absence of corrosion.



A PROJECT WITHOUT A SITE

Mr. BROOKING, the General Manager of the SOGIMA Company, in charge of pipework installation, tells us this project was completed smoothly, quickly, with genuine efficiency. An important point is that there was no acoustic nuisance. GIRPI specially trained three installers for the purposes of this project, that will be further extended in 2005. Mr. HARTEMANN, Technical Manager for the hospital's air conditioning installation, says that "KRYOCLIM® was an obvious choice. Moreover, we experienced difficulties with metallic pipes and the use of a product like KRYOCLIM® eliminates maintenance problems".



WRITE TO US!

We are interested in your experience and your projects.

Explain and present a project or a site characteristic of your know how, we are always attentive to your concerns and may describe your case study in future issues.

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AIR CONDITIONING AND REGULATIONS

In response to the 2003 heat wave, the January 2004 circular now imposes a certain number of air conditioned rooms in hospitals and medical buildings. The Nancy hospital has gone further than this minimum requirement since the "medium-to-long stay" building will be 100% air conditioned. Since KRYOCLIM® has proved that it is very efficient for this first phase, it will be used again for other phases.